

```

; ****
; O T O R
; ****
; Stacktiefe < 30H
; CTC: EQU 00H
; PRUEB: EQU 04H
; ASS: EQU 20H
; PDISP: EQU ASS+1
; SCHALT: EQU ASS+3
; KONSOL: EQU ASS+3
; TASTER: EQU ASS+7
; PREG: EQU ASS+8
; PDRUMS: EQU ASS+18H
; MSTAT: EQU ASS+1AH
; OKT: EQU 40H
; MOD: EQU 60H
; DEC: EQU 80H
; AMP: EQU 0A0H
; AFTG: EQU 0E0H
; K1: EQU 48077
; RAM: EQU 1000H
; RAMLEN: EQU 3FFH
; NOSZ: EQU 8
; NHPN: EQU 2
; NHPM: EQU 4
; NHP: EQU NHPN*NHPM
; NTPN: EQU 2
; NTPM: EQU 4
; NTP: EQU NTPN*NTPM
; NFPN: EQU 2
; NFPM: EQU 4
; NFP: EQU NFPN*NFPM
; NGP: EQU 4
; NREGGR: EQU 16
; FKLEN: EQU NREGGR+1+NHP+NTP+NFP+NGP

```


ORG	0000H	0	0	0
-----	-------	---	---	---

OTOR:	JP	TLED	0	0
	DEFM	'OTOR :	0	0
	DEFM	'WRITTEN BY HELMUT METZ'	0	0

TICTC:	DEFW	0	H00	U03	1373
	DEFW	TCTC1	H00	U03	103199
	DEFW	TCTC2	H00	U03	102199
	DEFW	0	I+28A	U03	102199
			Z+28A	U03	SCHEALTE
			Z+28A	U03	KOMPLEX

ICTC:	DEFW	ZYKL01	Z+28A	U03	102199
	DEFW	ZYKL02	X+28A	U03	102199
			Y+28A	U03	102199

TCTC3:	DEFW	TCTC0	H01+28A	U03	128199
TCTC4:	DEFW	TKART	H01+28A	U03	114199
			I+28A	U03	114199

TCTC5:	DEFB	20H	H00	U03	100199
	DEFB	37H	H00	U03	133199
	DEFB	255	H0000	U03	105199
	DEFB	0C7H	H0300	U03	107199
	DEFB	10	23888	U03	101199
	DEFB	0C7H	H0001	U03	101199
	DEFB	40	H0002	U03	101199
			0	U03	100199

ICTC1:	DEFB	28H	0	U03	105199
	DEFB	87H	1	U03	105199
	DEFB	156	2	U03	105199
	DEFB	0A7H	3	U03	105199
	DEFB	195	4	U03	105199
			5	U03	105199
			6	U03	105199
			7	U03	105199
			8	U03	105199
			9	U03	105199
			10	U03	105199

Datum: 20.03.90

OTDR.S

Seite: 3

***** D I A G N O S E *****

UP ZEIT *****

ZEIT:	LD	HL,K1
	DEC	HL
ZEIT1:	DEC	HL
	LD	A,H
	OR	L
	JR	NZ,ZEIT1
	JP	(IX)

***** TEST LED *****

TLED:	LD	C,PRUEB
	IN	D,(C)
	BIT	0,D
	JP	Z,SYSTEM
TLED1:	LD	B,1
	OUT	(C),B
	INC	B
	LD	IX,TLED2
	JP	ZEIT
TLED2:	IN	A,(C)
	BIT	0,A
	JR	NZ,TLED1

***** TEST RAM *****

TRAM:	LD	B,1
	OUT	(C),B
	LD	IX,TRAM3
	JP	ZEIT
TRAM3:	LD	HL,RAM
	LD	DE,RAM+1
	LD	A,55H
	LD	(HL),A
	LD	BC,RAMLEN-1
TRAM0:	LDI	
	JP	P0,TS1
	CP	(HL)
	JR	Z,TRAM0
	LD	B,1
	LD	A,(HL)
	AND	0FH
	CP	5
	JR	Z,TRAM1
	SET	2,B
TRAM1:	LD	A,(HL)
	AND	0F0H
	CP	50H
	JR	Z,TRAM2
	SET	3,B
TRAM2:	LD	C,PRUEB
	OUT	(C),B
		HALT

Datum: 20.03.90

P-SPRINTER

OTOR.S

Seite: 4

***** TEST SCHALTER S1_1 - S1_3 *****

TS1:	LD	B,2	; "2	3 2 0 0 0 A 1 0	*****
	OUT	(C),B			
	IN	A,(C)			
	LD	D,A			
	CPL				
	AND	0EH		13,0H	0J 11135
	LD	E,A		13H	036
TS1_0:	IN	A,(C)		13H	036 11135
	CP	D		13H	0J
	JR	Z,TS1_0		13H	0J
	LD	D,A		11135,1H	06
	LD	B,9		(X)H	96
	OUT	(C),B			
	LD	IX,TS1_1		***** 033 100T 00000	
	JP	ZEIT			
TS1_1:	LD	B,1		030H,0	0J 10311
	OUT	(C),B		031,0	01
	LD	A,D		0,0	T18
	AND	0EH		H30Y0A,5	96
	CP	E			
	JR	NZ,TS1_0		13,0H	0J
				9,(0)H	T00 110311
*****	TEST CTC	*****			
TCTC:	LD	B,3	; "3	203,11	0J
	OUT	(C),B		TEST	96
	LD	A,0		(C)H,A	01 T203,11
	LD	I,A		A,9	T18
	IM	2		103,11,SM	96
	LD	HL,TCTC5			
	LD	C,CTC		1,0H	0J 10001
	LD	B,3		9,(0)H	T00
	OTIR	C		EMART,11	0J
	INC	C		T18	96
	LD	B,2		H00,1H	0J 1EMART
	OTIR			L+H00,30	0J
	INC	C		H00,A	0J
	LD	B,2		A,(0)H	0J
	OTIR			L+H00,H00	0J
					T00 1EMART
	LD	C,PRUEB		12T,0H	96
	LD	B,2		(0)H	90
TCTC0:	EI			EMART,5	96
	JR	TCTC0		1,0H	0J
				C00,A	0J
TCTC1:	DI			H00	0MA
	LD	A,B			96
	XOR	B		EMART,2	96
	LD	B,A		9,(0)H	T00
	OUT	(C),B		L00,A	0J 1EMART
	LD	HL,TCTC3		H00,0H	0MA
	LD	SP,HL		H00	90
	RETI			SH00T,5	96
				9,(0)H	T00
TCTC2:	DI			SEURH,0	0J 1EMART
	LD	HL,TCTC4		9,(0)H	T00
	LD	SP,HL			T00
	RETI				

***** TEST KARTEN *****

TKART: LD HL, RAMURAMLEN
LD SP, HL
TKAR0: LD B, 3
LD C, ASS
CALL TKAR1 ; "4
LD C, OKT
CALL TKAR1 ; "5
LD C, DEC
CALL TKAR1 ; "6
LD C, AMP
CALL TKAR1 ; "7
JR TKAR0

TKAR1: IN A, (PRUEB)
BIT 0, A
JR Z, TKAR1
INC B
LD A, B
OUT (PRUEB), A
TKAR2: LD A, 'T'
OUT (C), A
LD IX, TKAR3
JP ZEIT
TKAR3: IN A, (PRUEB)
BIT 0, A
JR NZ, TKAR2
RET

Datum: 20.03.90

OTORS

09.08.92 Seite: 6

; ***** SYSTEM *****

; ***** SYSTEMINITIALISIERUNG *****

SYSTEM:	LD	B, 4	; 4x0,5sek
	LD	IX, SYST02	A, 0
SYST01:	JP	ZEIT	B, 0
SYST02:	DJNZ	SYST01	C, 0
	LD	HL, RAM+RAMLEN	D, 0
	LD	SP, HL	E, 0
	XOR	A	F, 0
	LD	I, A	G, 0
	IM	2	H, 0
	LD	HL, ICTC1	I, 0
	LD	B, 03	J, 0
	LD	C, CTC	K, 0
	OTIR	001	L, 0
	LD	B, 02	M, 0
	INC	C	N, 0
	OTIR		O, 0
DSTART:	LD	HL, TONTAB	P, 0
	XOR	A	Q, 0
	CALL	TABLOE	R, 0
	LD	HL, OLDTAB	S, 0
	CALL	TABLOE	T, 0
	LD	HL, NEWTAB	U, 0
	CALL	TABLOE	V, 0
	LD	HL, AMPTAB	W, 0
	CALL	TABLOE	X, 0
	LD	HL, PHATAB	Y, 0
	CALL	TABLOE	Z, 0
	LD	HL, INDTAB	AA, 0
	DEC	A	AB, 0
	CALL	TABLOE	AC, 0
	LD	HL, 0001H	AD, 0
	LD	(LOELEN), HL	AE, 0
	LD	IX, CTCTAB	AF, 0
	LD	A, OKT	AG, 0
	LD	C, DEC	AH, 0
	LD	D, AMP+1	AI, 0
	LD	E, MOD	AJ, 0
	LD	B, NOSZ	AK, 0
SYST03:	LD	(IX+0), A	AL, 0
	LD	(IX+DECTAB-CTCTAB), C	AM, 0
	LD	(IX+ANATAB-CTCTAB), D	AN, 0
	LD	(IX+MODTAB-CTCTAB), E	AO, 0
	ADD	A, 4	AP, 0
	INC	C	AQ, 0
	INC	D	AR, 0
	INC	E	AS, 0
	INC	IX	AT, 0
	BIT	0, D	AU, 0
	JR	Z, SYST04	AV, 0

Datum: 20.03.90

OTOR.S

07.20.05 Seite: 7

Datum: 20.03.90

OTOR.S

Seite: 8

***** VORDERGRUND *****

FCOM:	EI				
	LD	HL,TXT1			
	CALL	WRTXT			
FC01:	LD	A,(FKOMB)			
	CALL	ZIFF			
	LD	(DPUFF+6),A			
	LD	IX,FCOM			
FC02:	CALL	INATES			
	JR	NC,FC03			
	LD	(FKOMB),A			
	CALL	FKHOL			
	JR	FC01			
FC03:	CP	16H			
	JR	NZ,FC01			
	LD	HL,4040H			
	LD	(DPUFF+4),HL			
	CALL	FKH10			
	EX	DE,HL			
	LD	HL,REGSP			
	LD	BC,FKLEN			
	LDIR				
FC07:	CALL	INA			
	CP	16H			
	JR	Z,FC07			
	JR	FCOM			

;** UP FKHOL **

; FREIE KOMB. HOLEN

FKHOL:	CALL	FKH10
	LD	DE,REGSP
	LD	BC,FKLEN
	LDIR	
	LD	HL,REGSP
	LD	C,PREG-1
	LD	B,NREGGR
FKH3:	INC	H
	OUTI	
	JR	NZ,FKH3
	RET	
FKH10:	LD	A,(FKOMB)
	LD	C,A
	LD	HL,FK0
	LD	B,FKLEN
	LD	A,L
FKH11:	ADD	A,C
	JR	NC,FKH12
	INC	H
FKH12:	DJNZ	FKH11
	LD	L,A
	RET	
FK00:	DEFW	0
	DEFW	0FFFFH

*** HUELLKURVENPARAMETER ***
 ; *** EINGABE ***

```
HUELLP: LD    HL,TXT12
       CALL WRTXT
       LD    HL,HP11
       LD    (PAREAD),HL
       LD    A,'H'
       LD    (PARECO),A
       JP    PAREIN
```

*** TREMOLOPARAMETER ***
 ; *** EINGABE ***

```
TREMP: LD    HL,TXT13
       CALL WRTXT
       LD    HL,TP11
       LD    (PAREAD),HL
       LD    A,'T'
       LD    (PARECO),A
       JP    PAREIN
```

*** FILTERPARAMETER ***
 ; *** EINGABE ***

```
FILTP: LD    HL,TXT14
       CALL WRTXT
       LD    HL,FP11
       LD    (PAREAD),HL
       LD    A,'F'
       LD    (PARECO),A
       JP    PAREIN
```

*** GENERATORPARAMETER ***
 ; *** EINGABE ***

```
GENP: LD    HL,TXT16
      CALL WRTXT
      LD    HL,GP1
      LD    (PAREAD),HL
      LD    A,'G'
      LD    (PARECO),A
      JP    PAREIN
```

```

;*** RHYTHMUS EINGABE      *** RHYTHMUS EINGABE      ***
;***                                     ***                                     ***

DRUMSE: LD    HL,TXT15      ;ENTER, BH   0.1  1000
        CALL WRTXT          ;TXTBH   1000
        LD    A,(DRUMS)       ;LPH,BH   0.1
        LD    IY,DPUFF+5      ;H,(DABRAH) 0.1
        CALL DEYTE           ;H,A     0.1
        LD    IX,DRUMSE       ;A,(DABRAH) 0.1
DRUMS1: CALL INATES        ;I;1. ZIFFER 0.1
        CP    0AH             ;ENTER, BH   0.1  1000
        JR    NC,DRUMS1       ;TXTBH   1000
        LD    B,A              ;LPH,BH   0.1
        LD    IY,DPUFF+5      ;H,(DABRAH) 0.1
        CALL ZIFF             ;H,A     0.1
        OR    80H              ;ENTER, BH   0.1  1000
        LD    (IY+1),A         ;TXTBH   1000
        XOR  A                 ;LPH,BH   0.1
        LD    (IY+0),A         ;H,(DABRAH) 0.1
        LD    A,B              ;H,A     0.1
        CP    2                 ;A,(DABRAH) 0.1
        JR    NC,DRUMS3        ;H,I;2.000 0.1
DRUMS2: CALL INATES        ;;2. ZIFFER
        CP    17H              ;;ET ?
        JR    Z,DRUMS4          ;ENTER, BH   0.1  1000
        CP    3                 ;TXTBH   1000
        JR    NC,DRUMS2        ;LPH,BH   0.1
        LD    C,A              ;ENTER, BH   0.1  1000
        LD    A,(IY+1)          ;TXTBH   1000
        AND  7FH              ;LPH,BH   0.1
        LD    (IY+0),A          ;H,(DABRAH) 0.1
        LD    A,C              ;H,A     0.1
        CALL ZIFF             ;A,(DABRAH) 0.1
        OR    80H              ;ENTER, BH   0.1  1000
        LD    (IY+1),A          ;TXTBH   1000
        LD    A,B              ;LPH,BH   0.1
        LD    B,C              ;ENTER, BH   0.1  1000
        CP    0                 ;TXTBH   1000
        JR    Z,DRUMS3          ;LPH,BH   0.1
        LD    A,C              ;ENTER, BH   0.1  1000
        ADD  A,10              ;TXTBH   1000
        LD    B,A              ;LPH,BH   0.1
DRUMS3: CALL ENTER          ;H,(DABRAH) 0.1
DRUMS4: LD    HL,DRUMS       ;H,A     0.1
        LD    (HL),B            ;H,(DABRAH) 0.1
        LD    A,(TASTGR)        ;H,A     0.1
        RLCA
        RLCA
        RLCA
        RLCA
        OR    (HL)
        OUT   (PDRUMS),A        ;H,A     0.1
        JR    DRUMSE            ;ENTER, BH   0.1  1000

```

*** UP PAREIN ***
;PARAMETEREINGABE

PAREIN:	LD	IX, PAREIN	
	LD	IY, DPUFF+2	
	LD	(IY+0), 0	
	LD	(IY+1), 80H	
	LD	(IY+2), 0	
	LD	(IY+3), 0	
	LD	(IY+4), 0	
	LD	A, (PARECO)	
	CP	'G'	; GP ?
	LD	A, 0	
	JR	Z, PARE1	
	CALL	INATES	; A:=n
	CP	17H	; ET ?
	JR	Z, PARE3	
	CP	NHPN+1	; n>NHPN ?
	JR	NC, PAREIN	
	CP	1	; n<1 ?
	JR	C, PAREIN	
PARE1:	PUSH	AF	
	CALL	ZIFF	
	LD	IY, DPUFF+2	
	LD	(IY+0), A	; ANZEIGE n
	POP	AF	
	LD	HL, MADR1	
	RLD		
PARE2:	CALL	INATES	; A:=m
	CP	17H	; ET ?
	JR	NZ, PARE21	
	LD	A, 1	; m:=1
PARE21:	CP	NHPM+1	; m>NHPM ?
	JR	NC, PARE2	
	CP	1	; m<1 ?
	JR	C, PARE2	
	PUSH	AF	
	CALL	ZIFF	
	OR	80H	
	LD	(IY+1), A	; ANZEIGE m
	POP	AF	
	RLD		; <MADR1>=nm
	JR	PARE4	
PARE3:	LD	A, 11H	; nm:=11
	LD	(MADR1), A	
	LD	A, (PARECO)	
	CP	'G'	; GP ?
	JR	NZ, PARE4	
	LD	A, 01H	; nm:=01 FUER GP
	LD	(MADR1), A	
PARE4:	LD	A, (MADR1)	; A:=nm
	LD	IY, DPUFF+2	
	CALL	BYTE	; ANZEIGE nm
	AND	0FH	
	DEC	A	; A=m-1
	LD	HL, (PAREAD)	
	ADD	A, L	
	LD	L, A	
	JR	NC, PARE41	
	INC	H	

PARE41: LD A, (MADR1)
 LD B,A
 BIT S,B
 JR Z,PARE43
 LD A,NHPM
 BIT 4,B
 JR Z,PARE42
 RLCA ; 2 x NHPN

PARE42: ADD A,L
 LD L,A
 JR NC,PARE43
 INC H ; <HL>=<HPnm>

PARE43: LD (MADR2),HL ; <HL>=<HPnm>

PARE5: LD HL, (MADR2)
 LD A, (HL) ; A=<HPnm>
 LD B,0
 LD HL, HUPAST

PARE51: CP (HL) ; SUCHE VON <>
 JR Z,PARE52 ; IN HUPAST
 JR C,PARE52
 INC B
 INC HL
 JR PARE51

PARE52: LD A,B
 LD IY,DPUFF+5
 CALL DBYTE ; ANZEIGE DER STUFE
 LD IX,PAREIN ; VON <>

PARE6: CALL INATES
 JR C,PARE8 ; ZIFFER ?
 CP 17H ; ET?
 JR NZ,PARE6
 LD HL,MADR1
 INC (HL) ; 0m1=0m+1
 LD A, (HL)
 AND 0FH
 CP NHPM+1
 JR NZ,PARE4
 LD A, (PARECO)
 CP 'G' ; GP ?
 JR Z,PARE3
 LD A, (HL)
 AND 0F0H
 ADD A,11H ; 0m+1 m+1
 LD (HL),A
 AND 0F0H
 LD B,A
 LD A,NHPN*10H
 CP B
 JR NC,PARE4
 LD A,11H ; 0m+1 11
 LD (HL),A
 JR PARE4 ; BYT

PARE7: CP 0AH
 JR NC,PARE6
 LD IX,PARE5
 LD B,A
 CALL ZIFF ; AND
 OR 80H ; 0D
 LD A, (PARECO) ; 0D
 LD B,0 ; ADD
 LD A, (PARECO) ; ADD
 LD B,0 ; ADD
 LD A, (PARECO) ; ADD
 LD B,0 ; ADD

```

LD      IY, DPUFF45
LD      (IY+1), A
XOR    A
LD      (IY+0), A
LD      A, B
CP      2
JR      NC, PAREB3
PAREB1: CALL   INATES          ; 2. STELLE
        CP      17H          ; JET ?
        JR      Z, PAREB4
        CP      0AH
        JR      NC, PAREB1
        LD      C, A
        LD      A, (IY+1)      ; 1. STELLE VERSCHIEBEN
        AND    7FH
        LD      (IY+0), A
        LD      A, C
        CALL   ZIFF
        OR      80H
        LD      (IY+1), A          ; 2. STELLE ANZEIGEN
        LD      A, C
        SUB    10
        INC     B
PAREB2: ADD    A, 10
        DJNZ   PAREB2
        LD      B, A
PAREB3: CALL   ENTER
PAREB4: LD      HL, HUPAST
        LD      A, B
        ADD    A, L
        LD      L, A
        JR      NC, PAREB5
        INC     H
PAREB5: LD      A, (HL)
        LD      HL, (MADR2)
        LD      (HL), A
        JP      PARE5

HUPAST: DEFB   00
        DEFB   01
        DEFB   02
        DEFB   03
        DEFB   05
        DEFB   07
        DEFB   0AH
        DEFB   0FH
        DEFB   16H
        DEFB   20H
        DEFB   30H
        DEFB   40H
        DEFB   58H
        DEFB   70H
        DEFB   88H
        DEFB   0A0H
        DEFB   0BBH
        DEFB   0D0H
        DEFB   0E8H
        DEFB   0FFH

```

```
;***** MONITOR *****
```

```
MONITO: LD      HL,TXT2
        CALL    WRTXT
MON0:   LD      IX,MONITO
        CALL    INATES
```

```
CP      0DH
JP      NZ,MON20
```

```
;** DISPLAY MEMORY **
```

```
MON10: LD      HL,TXT3
        CALL    WRTXT
        LD      B,4
        LD      HL,MADR1+1
        LD      IX,MON10
        LD      IY,DPUFF+1
        CALL    ZAHL
```

```
;DISPLAY ?
```

```
IN      I
JL      L
JR      R
CALL   CALL
CB      CB
JR      JR
INC    INC
LD      LD
IY      IY
ZAHL   ZAHL
;EINGABE ADRESSE
```

```
MON11: LD      HL,(MADR1)
        LD      A,(HL)
        LD      IY,DPUFF+5
        CALL    BYTE
```

```
;ANZEIGE INHALT
```

```
CALL    INA
JR      Z,MON11
CP      17H ;ET?
JR      NZ,MON13
INC    INC
LD      (MADR1),HL
LD      IY,DPUFF+1
LD      A,H
CALL    BYTE
LD      A,L
CALL    BYTE
SET    7,(IY-1)
JR      MON11
```

```
;NAECHSTE ADRESSE
```

```
MON13: CALL    KOTEST
        JR      NC,MON11
MON14: LD      B,2
        LD      HL,MDAT
        LD      IY,DPUFF+5
        LD      (IY+1),80H
        CALL    ZAHLA
```

```
;EINGABE DATEN
```

```
CALL    ENTER
LD      A,(MDAT)
LD      HL,(MADR1)
LD      (HL),A
JR      MON11
```

```
;DATEN SCHREIBEN
```

```
MON20: CP      I
        JR      NZ,MON30
```

```
;INPUT ?
```

```
;** INPUT PORT **
```

```

MON21: LD    HL,TXT4
       CALL WRTXT

       LD    B,2          ;PORT
       LD    HL,MADR1
       LD    IY,DPUFF+2
       LD    IX,MON21
       CALL ZAHL

MON22: LD    HL,MADR1
       LD    C,(HL)
       IN    A,(C)
       LD    IY,DPUFF+5
       CALL BYTE
       CALL INA
       JR    Z,MON22
       CALL KOTEST
       CP    17H
       JR    NZ,MON22
       INC   (HL)
       LD    A,(HL)
       LD    IY,DPUFF+2
       CALL BYTE
       JR    MON22

MON30: CP    0
       JR    NZ,MON40

;** OUTPUT PORT **

MON31: LD    HL,TXT5
       CALL WRTXT

       LD    B,2          ;ADRESSE
       LD    HL,MADR1
       LD    IY,DPUFF+2
       LD    IX,MON31
       CALL ZAHL

MON32: CALL INATES
       JR    C,MON33
       CP    17H
       JR    NZ,MON32
       INC   (HL)
       LD    A,(HL)
       LD    IY,DPUFF+2
       CALL BYTE
       JR    MON32

MON33: LD    B,2
       LD    HL,MDAT
       LD    IY,DPUFF+5
       LD    (IY+1),80H
       CALL ZAHLA
       CALL ENTER
       LD    HL,MADR1
       LD    C,(HL)
       LD    A,(MDAT)
       OUT   (C),A
       LD    IY,DPUFF+5
       LD    (IY+0),0

```

*** INPUT PORT ***

	LD	(IY+1), 0	WRTXT	01	SCOM1
	JR	MON32		01	
MON40:	CP	0FH	;FILL ?	01	
	JR	NZ, MON50		01	
; ** FILL MEMORY **					
MON41:	LD	HL, TXT6	WRTXT	01	SCOM1, 01
	CALL			01	
	LD	B, 4		01	
	LD	HL, MADR1+1	WRTXT	01	SCOM1, 01
	LD	IX, MON41		01	
	LD	IY, DPUFF+3		01	
	CALL	ZAHL	;ANFANGSADRESSE	01	
	CALL	ENTER		01	
MON42:	LD	HL, TXT7	WRTXT	01	SCOM1, 01
	CALL			01	
	LD	B, 4		01	
	LD	HL, MADR2+1	WRTXT	01	SCOM1, 01
	LD	IX, MON42		01	
	LD	IY, DPUFF+3		01	
	CALL	ZAHL	;ENDADRESSE	01	
	CALL	ENTER		01	
MON43:	LD	HL, TXT8	WRTXT	01	SCOM1, 01
	CALL			01	
	LD	B, 2		01	
	LD	HL, MDAT	WRTXT	01	SCOM1, 01
	LD	IX, MON43		01	
	LD	IY, DPUFF+4		01	
	CALL	ZAHL	;DATEN	01	
	CALL	ENTER		01	
	LD	HL, (MADR1)	WRTXT	01	;ANFANG
	EX	DE, HL		01	
	LD	HL, (MADR2)	WRTXT	01	;ENDE
	XOR	A		01	;CY:=0
	SBC	HL, DE		01	
	LD	B, H		01	
	LD	C, L	WRTXT	01	;LAENGE
	LD	H, D		01	
	LD	L, E	WRTXT	01	;ANFANG
	INC	DE		01	
	LD	A, (MDAT)	WRTXT	01	
	LD	(HL), A		01	
	LDIR			01	
	JP	MONITO		01	
MON50:	CP	0BH	;BEWEGEN ?	01	
	JP	NZ, MONITO		01	
; ** BEWEGEN **					
MON51:	LD	HL, TXT9	WRTXT	01	SCOM1, 01
	CALL			01	
	LD	B, 4		01	
	LD	HL, MADR1+1	WRTXT	01	SCOM1, 01
	LD	IX, MON51		01	
	LD	IY, DPUFF+3		01	
	CALL	ZAHL	;ANFANGSADRESSE	01	

CALL	ENTER			
		HL, TXT11	0.1	
		SEHOM	0.1	
MON52:	LD	HL, TXT10		
	CALL	WRTXT	H30	90
	LD	B, 4	000000, H	0.1
	LD	HL, MADR2+1		
	LD	IX, MON52		
	LD	IY, DPUFF+3		
	CALL	ZAHL	01 ;ENDADRESSE	
	CALL	ENTER		
MON53:	LD	HL, TXT11	000000, H	0.1
	CALL	WRTXT	000000, H	0.1
	LD	B, 4	000000, H	0.1
	LD	HL, MADR3+1	000000, H	0.1
	LD	IX, MON53	000000, H	0.1
	LD	IY, DPUFF+3	000000, H	0.1
	CALL	ZAHL	01 ;ZIELADRESSE	
	CALL	ENTER		
	LD	HL, (MADR1)	000000, H	0.1
	EX	DE, HL	000000, H	0.1
	LD	HL, (MADR2)	000000, H	0.1
	XOR	A	000000, H	0.1
	SBC	HL, DE	000000, H	0.1
	LD	B, H	000000, H	0.1
	LD	C, L	000000, H	0.1
	INC	BC	000000, H	0.1
	LD	HL, (MADR3)	000000, H	0.1
	EX	DE, HL	000000, H	0.1
	LDIR		000000, H	0.1
	JP	MONITO	000000, H	0.1
		MONITO	000000, H	0.1
		RET	000000, H	0.1

;** UP WRTXT **

; HL - TEXTANFANG (7 ZEICHEN)

WRTXT:	PUSH	BC	01	
	PUSH	DE	0000	
	LD	BC, 7	00, H	0.1
	LD	DE, DPUFF	00, H	0.1
	LDIR		00, H	0.1
	POP	DE	0, H	0.1
	POP	BC	0, H	0.1
	RET		00	0.1

;** UP ZIFF **

; A- ZIFFER-->CODE

ZIFF:	PUSH	HL	0000	0.1
	LD	HL, ZIFFT	000000, H	0.1
	AND	0FH		
	ADD	A, L		
	LD	L, A		
	JR	NC, ZIFF1	000000, H	0.1
	INC	H	000000, H	0.1
ZIFF1:	LD	A, (HL)	000000, H	0.1
	POP	HL	000000, H	0.1
	RET		000000, H	0.1
ZIFFT:	DEFB	3FH	0	0.1

DEFB	06H	;1
DEFB	5BH	;2
DEFB	4FH	;3
DEFB	66H	;4
DEFB	60H	;5
DEFB	7DH	;6
DEFB	07H	;7
DEFB	7FH	;8
DEFB	6FH	;9
DEFB	77H	;A
DEFB	7CH	;B
DEFB	39H	;C
DEFB	5EH	;D
DEFB	79H	;E
DEFB	71H	;F

*** UP BYTE ***

; 1BYTE HEX --> 2BYTE CODE
; A -BYTE
; IY -DISPLAYANFANG

BYTE:	PUSH	AF
	PUSH	BC
	LD	C,A
	RLCA	
BYTE1:	CALL	ZIFF
	LD	(IY),A
	INC	IY
	LD	A,C
	CALL	ZIFF
	LD	(IY),A
	INC	IY
	POP	BC
	POP	AF
	RET	

DBYTE:	PUSH	AF
	PUSH	BC
	LD	B,0
DBYTE1:	INC	B
	SUB	10
	JR	NC,DBYTE1
	ADD	A,10
	DEC	B
	LD	C,A
	LD	A,B
	JR	BYTE1

*** UP ZAHL ***

; ZAHL (1 - 2 BYTE) IN DISPLAY
; UND SPEICHER VON KONSOLE EINGEBEN
; B - STELLENANZAHL (2,4)
; HL - ZAHLENENDE IM SPEICHER
; IX - RUECKSPRUNGADRESSE BEI CLEAR
; IY - ZAHLENANFANG IM DISPLAY
; DE - WIRD ZERSTOERT

ZAHL:	CALL	INA		EE	H80	8730
	JR	Z, ZAHL		E1	H82	8730
ZAHLA:	CALL	KOTEST		E1	H84	8730
	JR	NC, ZAHL		E3	H86	8730
	PUSH	AF		E1	H88	8730
	RLD			E1	H8A	8730
	LD	A, 3		E1	H8C	8730
	CP	B		E1	H8E	8730
	JR	NZ, ZA1		E1	H90	8730
	DEC	HL		A1	H92	8730
ZA1:	POP	AF		D1	H94	8720
	CALL	ZIFF		D1	H96	8730
	LD	D,A		E1	H98	8730
	LD	A, 80H		E1	H9A	8730
	AND	(IY)		E1	H9C	8730
	OR	D				
	LD	(IY), A				
	INC	IY				
	DJNZ	ZAHL				
	RET					
ENTER:	CALL	INA				
	JR	Z, ENTER				
	CALL	KOTEST				
	CP	17H				
	JR	NZ, ENTER				
	RET					
INATES:	CALL	INA				
	JR	Z, INATES				
KOTEST:	CP	14H				
	JR	NZ, KT1				
	POP	DE				
	JP	(IX)				
KT1:	PUSH	IX				
	LD	IX, RAM+RAMLEN				
	CP	34H				
	JR	NZ, KT2				
	LD	SP, IX				
	JP	MONITO				
KT2:	CP	11H				
	JR	NZ, KT3				
	LD	SP, IX				
	JP	HUELLP				
KT3:	CP	12H				
	JR	NZ, KT4				
	LD	SP, IX				
	JP	TREMP				
KT4:	CP	13H				
	JR	NZ, KT5				
	LD	SP, IX				
	JP	FILTP				
KT5:	CP	30H				
	JR	NZ, KT6				
	LD	SP, IX				
	JP	DRUMSE				
KT6:	CP	31H				
	JR	NZ, KT7				
	LD	SP, IX				
	JP	GENP				
KT7:	CP	10H				
	JR	NZ, KT8				

LD SP, IX
 JP FCOM
 KTB: POP IX
 RET

*** UP INA ***

; NZ = NEUES ZEICHEN IN A

INA: EI
 PUSH BC
 PUSH DE
 PUSH HL

; ENTPRELLUNG

LD HL, INASTA
 BIT @, (HL)
 RES @, (HL)
 JR Z, INA01

INA0: LD HL, 2000H
 INA0: DEC HL
 LD A, L
 OR H
 JR NZ, INA0

; 1. KONSOLABFRAGE

; (KONSOL) (BIT 0-2): SPALTE 1
 ; (KONSOL+1) (BIT 0-2): " 2
 ; (KONSOL+2) (BIT 0-2): " 3
 ; (KONSOL+3) (BIT 0-2): " 4

INA01: LD B, 4
 LD C, KONSOL
 LD D, @
 INA1: IN A, (C)
 AND Z
 CP Z
 JR NZ, INA2
 LD A, D
 ADD A, 6
 LD D, A
 INC C
 DJNZ INA1
 LD HL, INASTA
 SET 1, (HL)
 BIT 2, (HL)
 JR NZ, INA4
 RES 1, (HL)
 JR INA4

INA2: DEC A
 ADD A, D
 LD HL, INAT
 ADD A, L
 LD L, A
 JR NC, INA3
 INC H

INA3: LD A, (HL)
 LD HL, INASTA
 BIT 1, (HL)
 JR Z, INA31
 RES 2, (HL)

RES A, (HL)
 JP 1, (HL)
 LD H, (HL)
 LD S, (HL)
 CALL 1, (HL)

; NEUERZEICHENSETZEN
 LD A, (HL)
 ADD H, (HL)
 LD H, (HL)
 LD H, (HL)
 LD H, (HL)

SET A, (HL)
 LD H, (HL)
 LD H, (HL)
 LD H, (HL)
 LD H, (HL)

SET A, (HL)
 LD H, (HL)
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SET A, (HL)
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 LD H, (HL)
 LD H, (HL)
 LD H, (HL)

SET A, (HL)
 LD H, (HL)
 LD H, (HL)
 LD H, (HL)
 LD H, (HL)

SET A, (HL)
 LD H, (HL)
 LD H, (HL)
 LD H, (HL)
 LD H, (HL)

INA31: ADD A,20H
 CP 15H ;TASTE SHIFT ?
 JR NZ,INA5
 SET 2,(HL) ;SHIFTE:=1
 JR INAS

;2. TASTERABFRAGE

;TASTER 1..16 : AUS INA (A)
 ; DFH..D0H : (20H..2FH) - A0H..AFH
 ;
 ;TASTGR 1..8 : AUS INA (A)
 ; EFH..E8H : (10H..17H) - 90H..97H

INA4: IN A,(TASTER)
 CP 0FFH
 JR Z,INA5 ;TASTERDRUCK ?
 XOR 0FFH ;NEGATION
 OR 80H ;BIT7:=1
 PUSH HL
 LD HL,INA5
 CP (HL) ;ALTES ZEICHEN ?
 POP HL
 JR Z,INA6

CP 90H
 JR C,INA41
 CP 98H
 JR NC,INA41 ;KOMOLOGABFRAGE
 PUSH AF ;TASTE RETTEN
 AND 7 ;TASTERGRUPPE
 LD (TASTGR),A
 RLCA
 RLCA
 RLCA
 RLCA
 PUSH HL
 LD HL,DRUMS
 OR (HL)
 POP HL
 OUT (PDRUMS),A
 JR INA44

INA41: CP 0A0H
 JR C,INA5
 CP 0B0H
 JR NC,INA5 ;TASTE RETTEN
 PUSH AF ;TASTE
 AND 0FH
 LD C,A
 LD HL,REGSP

ADD A,L ;SAM1
 LD L,A ;SAM2
 JR NC,INA42 ;SAM3
 INC H

INA42: LD A,(TASTGR) ;A:=0
 LD B,A ;CY:=1
 INC B
 XOR A ;MASKE BILDEN
 SCF

INA43: RLA ;TASTGR
 DJNZ INA43 ;MASKE BILDEN
 XOR (HL)

	LD	(HL), A	H21	8930	XTXT
	LD	B, A	8	8930	
	LD	A, PREG	; PORT BILDEN		
	ADD	A, C	8	8930	
	LD	C, A	H20	8930	
	DUT	(C), B	; AUSGABE	8930	
INA44:	POP	AF	; TASTE HOLEN		
			H21	8930	
INA5:	LD	HL, INAZ	1	8930	
	CP	(HL)	; ALTES ZEICHEN ?		
	LD	(HL), A	2	8930	
	JR	Z, INA7	H20	8930	
	LD	HL, INASTA	H21	8930	
	SET	0, (HL)	; ENTPRELLEN ?		
			S	8930	
INA6:	CP	0FFH	; TASTENDRUCK ?		
INA7:	POP	HL	HAB	8930	
	POP	DE	H2H	8930	
	POP	BC	H21	8930	
	RET				

INAT:	DEFB	10H		A,CD	CD
	DEFB	0		A,B	BD
	DEFB	4		A,BE0	ED
	DEFB	8		A,C	AD
	DEFB	0CH		C,A	CD
	DEFB	14H		B,(C)	DT
				AE	EPB
	DEFB	11H			INAI
	DEFB	1		INAI,INAS	CD
S IN	DEFB	5		(CD)	CB
	DEFB	9		A,CD	CD
	DEFB	0DH		INAI,S	CR
	DEFB	15H			
			AT89L, IN		CD
	DEFB	12H		(CD,0	DET
	DEFB	2			
	DEFB	6		HFA0	CB
	DEFB	0AH		JH	90H
	DEFB	0EH		DE	90H
	DEFB	16H		DC	90H
					RET
	DEFB	13H			
	DEFB	3			
	DEFB	7			
	DEFB	0BH			
	DEFB	0FH			
	DEFB	17H			
TXT1:	DEFB	71H	;F		
	DEFB	39H	;C		
	DEFB	3FH	;D		
	DEFB	37H	;M		
	DEFW	0			
	DEFW	0			
TXT2:	DEFB	37H	;M		
	DEFB	3FH	;O		
	DEFW	0			
	DEFB	0			
	DEFB	76H	;H		
	DEFB	37H	;M		
TXT3:	DEFB	0DEH	;d.		
	DEFW	0			
	DEFW	8000H	;.		
	DEFW	0			
TXT4:	DEFB	86H	;I.		
	DEFW	0			
	DEFW	8000H	;.		
	DEFW	0			
TXT5:	DEFB	0BFH	;O.		
	DEFW	0			
	DEFW	8000H	;.		
	DEFW	0			
TXT6:	DEFB	71H	;F		
	DEFB	0F7H	;A.		
	DEFW	0			
	DEFW	0			
	DEFB	80H			
TXT7:	DEFB	71H	;F		
	DEFB	0F9H	;E.		
	DEFW	0			
	DEFW	0			
	DEFB	80H			

TXT8: DEFB 71H ;F
DEFB 0DEH ;d.
DEFW 0
DEFW 0
DEFB 80H
TXT9: DEFB 7CH ;b
DEFB 0F7H ;A.
DEFW 0
DEFW 0
DEFW 80H
TXT10: DEFB 7CH ;b
DEFB 0F9H ;E.
DEFW 0
DEFW 0
DEFB 80H
TXT11: DEFB 7CH ;b
DEFB 0DEH ;Z.
DEFW 0
DEFW 0
DEFB 80H
TXT12: DEFB 76H ;H
DEFB 73H ;P
DEFB 0
DEFB 80H ;
DEFW 0
DEFB 0
TXT13: DEFB 31H ;T
DEFB 73H ;P
DEFB 0
DEFB 80H ;
DEFW 0
DEFB 0
TXT14: DEFB 71H ;F
DEFB 73H ;P
DEFB 0
DEFB 80H ;
DEFW 0
DEFB 0
TXT15: DEFB 50H ;r
DEFB 74H ;h
DEFB 0
DEFB 80H ;
DEFW 0
DEFB 0
TXT16: DEFB 3DH ;G
DEFB 73H ;P
DEFB 0
DEFB 80H ;
DEFW 0
DEFB 0

;***** ZYKLUS 01 *****

;** ZYKLUSZEIT 1ms **
;** LAUFZEIT 33,6Mys **

ZYKL01: EI

EXX		REGISTER
EX	AF,AF'	;RETEN
LD	A,(HL)	
OUT	(PDISP),A	
OUT	(C),D	;PDISP+1
RLC	D	
INC	L	
RES	3,L	
EX	AF,AF'	
EXX		
RETI		

;***** ZYKLUS 02 *****

;** ZYKLUSZEIT 20ms **

ZYKL02: EI

```

CALL    RETREG
CALL    LOTAKT
CALL    MANPOL
CALL    SUSTAI
CALL    AMPLI
CALL    HOLREG
RETI

```

;***** UP LOTAKT *****

;LOESCHTABELLEN-AKTUALISIERUNG

ZYKL02:	LD	IX, LOELEN
	LD	A, (IX)
	CP	1
	RET	Z

;LOELEN=0

LD	HL, LOETAB+1
LD	IY, LOETAB+1
LD	B, A
DEC	B

LTA01:	LD	A, (HL)
	LD	C, A

DMA03:	OUT	(ASS), A
	RLD	

AND	0FH
SUB	3
LD	(IY), C
INC	HL
INC	IY
LD	C, A

DMA04:	IN	A, (ASS)
LTA02:	DEC	C

RRCA	
JR	NZ, LTA02
JR	NC, LTA03

;LOELEN-1

DEC	(IX)
DEC	IY

;ZEIGER-1

LTA03:	DJNZ	LTA01
	RET	

***** UP MANPOL *****

; MANUAL POLLING

; MATRIXZEILEN 1(C)-12(H)

; MATRIXSPALTEN 0(M1,00)-7(M2,03)

MANPOL:	LD	HL, NEWTAB	; NEWTAB
	XOR	A	; LOESCHEN
	CALL	TABLOE	
	LD	C, ASS	
	LD	B, 0CH	
	LD	E, A	
	LD	IY, REGSP	
MP01:	OUT	(C), B	; MATRIXSPALTE
DMA01:	IN	A, (C)	; MATRIXZEILE
	CP	0FFH	; KEIN TASTENDRUCK ?
MP02:	JP	Z, MP10	
	LD	D, 40H	; M1.00
	SCF	1	
	RRA		
	PUSH	AF	; A RETTEN
	JP	C, MP09	; TASTE NICHT ?
	LD	A, D	; MAN&OKT
	AND	0C0H	; MAN
	OR	E	
	LD	E, A	; MANSTA
	LD	A, D	; MAN&OKT
	OR	B	; TON
	PUSH	BC	; BC RETTEN
	LD	HL, LOELEN	
	LD	C, (HL)	
	LD	B, 0	
	INC	HL	
	CPIR		
	JP	Z, MP08	; LOESCH TASTE ?
MULTIPLA:	LD	BC, NOSZ	
	LD	HL, OLDTAB	
	CPIR		
	JP	Z, MP07	; ALTE TASTE ?
NEUE TASTE:	LD	(TON), A	
	LD	HL, TONTAB	
	LD	BC, NOSZ	
	CPIR		
	JR	NZ, MP03	
	PUSH	HL	; TASTE IM SUSTAIN
	POP	IX	
	LD	(IX+PHATAB-TONTAB-1), 1	
	LD	(IX+AMPTAB-TONTAB-1), 0	
	LD	(IX+NEWTAB-TONTAB-1), A	
	LD	(IX+INDTAB-TONTAB-1), 0	
	CALL	UDRUMS	
	LD	BC, INDTAB-TONTAB-1	

```

ADD    IX, BC
CALL   UATTAC
JP    MP06

MP03: LD    HL, INDTAB
LD    B, NOSZ-1
PUSH  HL
LD    A, (HL)
; EINTRAGEN
MP04: INC   HL
CP    (HL)
JR    NC, MP05
POP   IX
PUSH  HL
LD    A, (HL)
MP05: DJNZ MP04
POP   IX
LD    A, (IX+OLDTAB-INDTAB)
; ZU LOESCHENDE TASTE ?
CP    0
JR    Z, MP051
LD    HL, LOELEN
INC   (HL)
LD    A, (HL)
ADD   A, L
LD    L, A
JR    NC, MP050
INC   H
MP050: LD    A, (IX+OLDTAB-INDTAB)
LD    (HL), A
; ATOMIEN
MP051: LD    A, (TON)
LD    (IX+TONTAB-INDTAB), A
LD    (IX+NEWTAB-INDTAB), A
LD    (IX+PHATAB-INDTAB), 1
LD    (IX+AMPTAB-INDTAB), 0
LD    (IX), 0
; TON
CALL  UATTAC
; AUSGABE
LD    BC
LD    C, (IX+MODTAB-INDTAB)
XOR   A
OUT   (C), A
; TEILERSYNCHRONISATION
LD    C, (IX+DECTAB-INDTAB)
OUT   (C), A
; DRUMS
CALL  UDRUMS
JR    NC, MP058
; MANUAL DRUMS ?
LD    HL, TON
LD    A, (HL)
LD    C, (IX+CTCTAB-INDTAB)
AND   30H
BIT   7, (HL)
; MANZ ?
JR    NC, MP053
ADD   A, 10H
MP053: RRCA
LD    HL, OKICTC
ADD   A, L
LD    L, A
JR    NC, MP054
INC   H
; OKT * 8
LD    HL, OKICTC
ADD   A, L
LD    L, A
JR    NC, MP054
INC   H
; OKT * 8

```

MP054: OUTI ; CTC K.0 T03
 OUTI A, (TON) ; GRUNDTON G1
 INC C
 OUTI ; CTC K.1 G1
 OUTI ; QUINTE G1
 INC C G1
 OUTI ; CTC K.2 G1
 OUTI A, (TON) ; TERZ G1
 LD A, (TON) H02 G1
 RLCA S03 G1
 RLCA T03 G1
 AND 3 BATOME,X1 G1
 LD C, (IX+MODTAB-INDTAB) S03,X G1
 CP 3 ; PEDAL ? G1
 JR NZ,MP055 S03,X G1
 LD A,4 S19H,X G1
 JR MP057 S19H,X G1
 MP055: CP 1 ; MAN 1 ? G1
 JR NZ,MP056 S19H,X G1
 BIT 1,(IY+14) ; MAN2 KOPP ? G1
 JR Z,MP057 S19H,X G1
 SET 1,A H02 G1
 JR MP057 S19H,X G1
 MP056: BIT 3,(IY+14) ; MAN1 KOPP ? G1
 JR Z,MP057 S19H,X G1
 SET 0,A A,(LH) R01 G1
 MP057: OUT (C),A ; TEILERFREIGABE
 LD A, (TON)
 LD C, (IX+DECTAB-INDTAB) T03,Y,T03 G1
 OUT (C),A ; TON R01
 MP058: POP BC ; AUSGABE ENDE
 MP06: AND 0C0H S03,G1
 RRCA S03,X G1
 RRCA S03,X G1
 OR E T03,X G1
 LD E,A ; MANSTA G1
 JR MP08 A,G1
 T03,X G1
 A,I T03,X G1
 LD E,A R01 G1
 MP07: PUSH HL T03,X G1
 POP IX R01 G1
 LD (IX+NEWTAB-OLDTAB-1),A G1
 MP08: POP BC ; BC HOLEN T03,X G1
 MP09: LD A,10H S03,G1
 ADD A,D S03,G1
 LD D,A ; NAECHSTE OKTAVE T03,X G1
 POP AF HS03,G1
 CP 0FFH ; MEHR TASTEN ?
 JP NZ,MP02 S03,G1
 MP10: DEC B,T03 T03,X G1
 JP NZ,MP01 T03,X G1
 LD A, (MADRUM) (BATOME-BATONT+XTT),A T03,X G1
 OUT (PDRUMS+1),A T03,X G1

```

XOR B,A
LD HOTO,(MADRUM),A
LD HL,MANSTA
LD (HL),E
RLD
LD S,(HL),E
DMA02: OUT (PRUEB),A
LD A,E
AND 30H
RET Z ;Z SETZEN LD RLA
LD IX,INDTAB
LD B,NOSZ ;BAT001-BAT004+IX,0
LD A,0FFH
MP11: CP (IX) ;INDEX INKRMENTIERUNG
JR Z,MP12
INC (IX)
MP12: INC IX
DJNZ MP11
RET ;MAN-KOPF: 228994
TABELLE: LD D,H
LD E,L
LD BC,OLDTAB-NEWTAB-1
INC DE
LD (HL),A
LD IR
RET ;MAN-KOPF: 228994
UDRUMS: BIT 1,(IY+11) ;BAT001-BAT004;MANUAL DRUM ?
JR Z,UDR2
LD A,(TON)
AND 70H
CP 70H ;1.MAN;4.OKT ?
JR NZ,UDR2
LD A,(TON)
PUSH HL ;MANUAL DRUM
LD HL,MDRUMT
AND A,0FH
DEC A
ADD A,L
LD L,A
JR NC,UDR1
INC H
UDR1: LD A,(MADRUM)
OR (HL) A,(I-BAT010-BAT014+IX1)
LD (MADRUM),A
POP HL
RET ;BC HOLEN ;CY:=1 ;KEIN MANUAL DRUM
UDR2: SCF
RET ;NECHSTE OKTAV
UATTAC: LD A,(TON)
AND 0C0H
CP PHATAB ;MANUAL 1 ? 90
JR NZ,UATT2
BIT 1,(IY+12) ;ATTAC REPEAT MAN1 ?
JR Z,UATT1
SET 4,(IX+PHATAB-INDTAB)
UATT1: BIT 1,(IY+13) ;ATTAC DOUBLE MAN1 ?
RET Z ;ATTAC DRUM ;DURCHGANG TUO

```


Datum: 20.03.90

OTOR. S

Seite: 33

OKICTC:	DEFB	47H	Z, CIX+PHTA-BINDATB	BET
	DEFB	15		RET
	DEFB	47H		RET
	DEFB	10		RET
	DEFB	47H		RET
	DEFB	12		RET
	DEFW	0		RET
	DEFB	47H		RET
	DEFB	30		RET
	DEFB	47H		RET
	DEFB	20		RET
	DEFB	47H		RET
	DEFB	24		RET
	DEFW	0		
	DEFB	47H		
	DEFB	60		
	DEFB	47H		
	DEFB	40		
	DEFB	47H		
	DEFB	48		
	DEFW	0		
	DEFB	47H		
	DEFB	120		
	DEFB	47H		
	DEFB	80		
	DEFB	47H		
	DEFB	96		
	DEFW	0		
	DEFB	47H		
	DEFB	240		
	DEFB	47H		
	DEFB	160		
	DEFB	47H		
	DEFB	192		
	DEFW	0		
MDRUMT:	DEFB	00010000B	; GROSSE TROMMEL	
	DEFB	00001000B	; KLEINE TROMMEL	
	DEFB	00000001B	; GROSSES BECKEN	
	DEFB	00000010B	; KLEINES BECKEN	
	DEFB	00000100B	; MARACAS	
	DEFB	00100000B	; GROSSES BONGO	
	DEFB	01000000B	; KLEINES BONGO	
	DEFB	10000000B	; HOELZER	
	DEFB	00100001B		
	DEFB	01000001B		
	DEFB	00100010B		
	DEFB	01000010B		

;***** UP SUSTAI *****

;SUSTAINERMITTLUNG (PHASE 4)

SUSTAI:	LD	B,NOSZ	(B+Y1),0	T38
	LD	C,0	(B+Y1),1	T38
	LD	IX,NEWTAB	(B+T2+MFTB+Y1),0	T38
	LD	HL,MANSTA	BC07B,Y1	Q1
SUST1:	XOR	A	(Y1),0	T38
	CP	(IX)	(Y1),1	T38
	JR	NZ,SUST5		T38
	CP	(IX+TONTAB-NEWTAB)		
	JR	Z,SUST5		
	LD	A,C		; SUSTAIN !
	OR	(IX+TONTAB-NEWTAB)		
	LD	C,A		
	XOR	A		
	CP	(IX+OLDTAB-NEWTAB)		
	JR	Z,SUST5		
	LD	(IX+PHATAB-NEWTAB),4		; SUSTAIN-ANFANG !
	LD	A,(IX+OLDTAB-NEWTAB)		
	AND	0C0H		
	CP	40H		; MAN1 ?
	JR	NZ,SUST2		
	BIT	6,(HL)		; WEITERER TON IN MAN1?
	JR	NZ,SUST5		
	LD	IY,STFIM1		
	CALL	SUST10		
	JR	SUST5		
SUST2:	CP	80H		; MAN2 ?.
	JR	NZ,SUST5		
	BIT	7,(HL)		; WEITERER TON IN MAN2?
	JR	NZ,SUST5		
	LD	IY,STFIM2		
	CALL	SUST10		
SUST5:	INC	IX		
	DJNZ	SUST1		
	LD	A,(HL)		; MANSTA
	RLCA			
	RLCA			
	AND	3		
	OR	(HL)		; MANSTA
	BIT	6,C		
	JR	Z,SUST6		
	SET	0,A		
	SET	2,A		
SUST6:	BIT	7,C		
	JR	Z,SUST7		
	SET	1,A		
	SET	3,A		
SUST7:	LD	(HL),A		
	OUT	(MSTAT),A		
	LD	HL,NEWTAB		
	LD	DE,OLDTAB		
	LD	BC,NOSZ		
	LDIR			; UMLADEN
	RET			

SUST10: SET 0, (IY+0) ;UMSCHALTEN AUF PHASE 3
 SET 1, (IY+0) ;A.3BANT; IN FTGAMP FESTIGATUR;
 SET 0, (IY+STTRM1-STFIM1)
 SET 1, (IY+STTRM1-STFIM1) X00H,0 D,I ;STATBUS
 AND 0C0H 0,C 0,I
 RET NZ BATNEM,0H 0,J
 LD IY, STGEN ATNEM,0H 0,J
 SET 0, (IY) A R0K 0,I
 SET 1, (IY) (X1) 9C 0,J
 RET STATUS,0H R6 0,J
 (BATNEM-BATNEM-X1) 9D 0,J
 (STGEN,5) R6 0,J
 ;
 ; STATBUS:
 (BATNEM-BATNEM-X1) 0,D 0,I
 (BATNEM BATNEM-X1) 9D 0,I
 A,D 0,I
 A R0K 0,J
 (BATNEM-BATNEM-X1) 9D 0,I
 (STGEN,5) R6 0,J
 ;
 ; STATBUS-STATBUS:
 A, (BATNEM-BATNEM-X1) 0,I 0,I
 (BATNEM BATNEM-X1) 9D 0,I
 H0H R0K 0,M
 H0H R6 0,I
 STATUS,0H R6 0,I
 (TIB,X) TIB 0,I
 STGEN,5H R6 0,I
 STATB TIB 0,I
 STATB R6 0,J
 (TIB,X) TIB 0,I
 STATUS,0H R6 0,J
 STATB TIB 0,I
 STATB R6 0,J
 ;
 ;
 ;
 ; STATBUS:
 (BATNEM,0H 0,I 0,I
 (BATNEM,0H 9D 0,I
 (BATNEM,0H R6 0,I
 A,D 0,I
 A,S 0,I
 0,5 0,I
 0,5 TIB 0,I
 STATUS,0H R6 0,I
 A,T 0,I
 A,Z 0,I
 A,(C,R) 0,I 0,I
 A, STATUS,0H R6 0,I
 (TIB,X) TIB 0,I
 (BATNEM,0H 0,I
 (BATNEM,0H 9D 0,I
 (BATNEM,0H R6 0,I
 ;
 ; TIB-STATBUS:

; ***** UP AMPLI *****

; AMPLITUDENERMITTLUNG

AMPLI:	LD	IX,PHATAB	A, C0	T0
	LD	B,NOSZ	C, C0	X0
			D	UH
AMPL01:	LD	A,(IX)	A, (C0)	T0
	AND	7	C, (C0+DECODE-BATANP-BATOMT+X1)	X0
			D	UH
PHASE1:	CP	1	A, (BATANP-BATOMT)	T0
	JP	C,AMPL06	A, (C0)	T0
	JR	NZ,PHASE2	A, (C0)	T0
	LD	A,(IX+AMPTAB-PHATAB)	X1	IMC :169.FMA
	CALL	SETIY	Y	DEC
	ADD	A,(IY+0)	10,HPn1	9E
	LD	C,A		
	LD	A,(IY+1)	; HPn2	
	JR	NC,PHAS11		
	INC	(IX)		
	AND	A	; UMSCHALTEN AUF PHASE 2	
	LD	A,0FFH		
	JP	NC,AMPL05		
	JR	PHAS21		
PHAS11:	AND	A	; UMSCHALTEN ZU PHASE 3	
	LD	I,Y,A,C		
	JR	NZ,AMPL05		
	CP	(IY+2)		
	JR	C,AMPL05		
	INC	(IX)	; UMSCHALTEN AUF PHASE 2	
	JR	PHAS21	; UMSCHALTEN ZU PHASE 3	
PHASE2:	CP	2		
	JR	NZ,PHASE4		
	LD	A,(IX+AMPTAB-PHATAB)		
	CALL	SETIY		
	SUB	(IY+1)	; HPn2	
	JR	C,PHAS21		
	CP	(IY+2)	; HPn3	
	JR	NC,AMPL05		
PHAS21:	BIT	4,(IX)		
	JR	NZ,PHAS22		
	BIT	3,(IX)	; ATTAC DOUBLE ?	
	JR	Z,PHAS23		
	RES	3,(IX)	; RES ATTAC DOUBLE	
PHAS22:	DEC	(IX)		
	LD	A,1	; UMSCHALTEN AUF PHASE 1	
	JR	AMPL05	; AMPLITUDE	
PHAS23:	INC	(IX)		
	LD	A,(IY+2)	; HPn3	
	JR	AMPL05		
PHASE4:	CP	4,00		
	JR	NZ,AMPL06		
	LD	A,(IX+AMPTAB-PHATAB)		
	CALL	SETIY		
	SUB	(IY+3)	; HPn4	
	JR	C,PHAS41		
	JR	NZ,AMPL05		
PHAS41:	LD	(IX),0 ; TON LOESCHEN	DT,RA,0	0,0 :06.FMA
	LD	(IX+TONTAB-PHATAB),0	2,B	0,0

```

LD      (IX+INDTAB-PHATAB),0FFH
XOR    A
PUSH   BC
LD      C,(IX+DECTAB-PHATAB)
OUT    (C),A
POP    BC
LD      A,1
;AMPL05: LD      A,(IX+AMPTAB-PHATAB),A
LD      C,(IX+ANATAB-PHATAB)
LD      D,45H
;AMPL51: OUT   (C),D
OUT   (C),A
;AMPL06: INC   IX
DEC   B
JP      NZ,AMPL01

```

; AMPLITUDENAUSGABE FUER FILTER-, TREMOLO- UND
GENERATORENSTEUERUNG

```

LD      A,(MANSTA)      ;MANUAL STATUS
BIT    4,A               ;NEUANSCHLAG MAN1 ?
JR    Z,AMPL72
LD      IY,STFIM1
LD      (IY+0),4           ;BIT2:=1
LD      (IY+STTRM1-STFIM1),4
LD      (IY+STGEN-STFIM1),4
LD      A,(REGSP+8)
BIT    1,A               ;FILTER UP MAN1 ?
JR    Z,AMPL70
SET   5,(IY+0)
;AMPL70: LD      A,(REGSP+9)
BIT    1,A               ;TREMOLO UP MAN1 ?
JR    Z,AMPL71
SET   5,(IY+STTRM1-STFIM1)
;AMPL71: JR      AMPL74
;AMPL72: BIT    5,A               ;NEUANSCHLAG MAN2 ?
JR    Z,AMPL80
LD      IY,STFIM2
LD      (IY+0),4           ;BIT2:=1
LD      (IY+STTRM2-STFIM2),4
LD      (IY+STGEN-STFIM2),4
LD      A,(REGSP+8)
BIT    3,A               ;FILTER UP MAN2 ?
JR    Z,AMPL73
SET   5,(IY+0)
;AMPL73: LD      A,(REGSP+9)
BIT    3,A               ;TREMOLO UP MAN2 ?
JR    Z,AMPL74
SET   5,(IY+STTRM2-STFIM2)
;AMPL74: LD      A,(REGSP+15)
BIT    6,A               ;GENERATOREN UP ?
JR    Z,AMPL80
LD      IY,STGEN
LD      (IY+BATANI-BATPNA+X1),A
SET   3,(IY+6)
;AMPL80: LD      C,AFTG
LD      B,5

```

```

LD      IY,FP11
LD      IX,AFIM1
AMPL81: CALL    FTGAMP
LD      A,(IX)
OUT    (C),A
INC    C
INC    IX
LD      DE,NFPM
ADD    IY,DE
DJNZ   AMPL81
; AUSGABE DER AMPLITUDEN (RESERVE)
LD      C,AFTG+7
LD      B,B
LD      HL,AMPTAB
AMPL82: INC    C
OUTI   NZ,AMPL82
JR      RET

```

```
; *** UP SETIY LJ ***
```

```

SETIY: LD      IY,HP11
BIT    6,(IX+TONTAB-PHATAB)
RET    NZ
LD      DE,4
ADD    IY,DE
RET

```

; MANUAL 1

```
; *** UP FTGAMP ***
```

```
; IY AUF PARAMETERTABELLE GERICHTET
; IX AUF AMPLITUDENSPEICHER GERICHTET
```

```

FTGAMP: LD      A,(IX+STFIM1-AFIM1) ; STATUSWORT
        AND    7 ; LEER ?
        RET    Z

        BIT    2,A ; NEUANSCHLAG ?
        JR     Z,FTG1
        RES    2,(IX+STFIM1-AFIM1)
        SET    0,(IX+STFIM1-AFIM1) ; PHASE:=1
        LD     A,(IY) ; P1
        CP     (IY+2) ; P1>P3 ?
        JR     NC,FTG4
        SET    4,(IX+STFIM1-AFIM1) ; PHASE1 UP !
        JR     FTG4

FTG1:  CP     1 ; PHASE1 ?
        JR     NZ,FTG3
        LD     A,(IX) ; AMPLITUDE
        BIT    4,(IX+STFIM1-AFIM1) ; PHASE1 UP ?
        JR     Z,FTG11
        ADD    A,(IY+1) ; P2
        JR     C,FTG12
        CP     (IY+2) ; P3
        JR     C,FTG4
        JR     FTG12

FTG11: SUB   (IY+1) ; PHASE1 DOWN
        JR     C,FTG12
        CP     (IY+2) ; P3

```

	JR	NC,FTG4	1FF9,00	01
FTG12:	INC	(IX+STFIM1-AFIM1)	IM12 ; UMSCH. AUF PHASE2	
	LD	A, (IY+2)	9B ; P3	
	JR	FTG4	9A ; IX,A	
			9B ; IX,A	
FTG3:	CP	3	9C ; PHASE3 ?	
	RET	NZ	9D	
	LD	A, (IX)	9E ; AMPLITUDE	
	BIT	5, (IX+STFIM1-AFIM1)	9F ; PHASE3 UP ?	
	JR	NZ,FTG31	100 ; AMPLITUDE	
	ADD	A, (IY+3)	101 ; P4	
	JR	NC,FTG4	102 ; AMPLITUDE DER SPURLEITDEHNEN (REVERSE)	
	LD	A, 0FFH	103 ; GATBER	
	JR	FTG32	104 ; 8,8	
FTG31:	SUB	(IY+3)	105 ; P4	
	JR	NC,FTG4	106 ; GATBER	
	LD	A, 0	107 ; GATBER	
FTG32:	RES	0, (IX+STFIM1-AFIM1)	108 ; GATBER	
	RES	1, (IX+STFIM1-AFIM1)	109 ; GATBER	
FTG4:	LD	(IX),A	110 ; AMPLITUDE	
	RET		111	

1. EINBAU	2. EINBAU	3. EINBAU	4. EINBAU	5. EINBAU
6. EINBAU	7. EINBAU	8. EINBAU	9. EINBAU	10. EINBAU
11. EINBAU	12. EINBAU	13. EINBAU	14. EINBAU	15. EINBAU
16. EINBAU	17. EINBAU	18. EINBAU	19. EINBAU	20. EINBAU
21. EINBAU	22. EINBAU	23. EINBAU	24. EINBAU	25. EINBAU
26. EINBAU	27. EINBAU	28. EINBAU	29. EINBAU	30. EINBAU
31. EINBAU	32. EINBAU	33. EINBAU	34. EINBAU	35. EINBAU
36. EINBAU	37. EINBAU	38. EINBAU	39. EINBAU	40. EINBAU
41. EINBAU	42. EINBAU	43. EINBAU	44. EINBAU	45. EINBAU
46. EINBAU	47. EINBAU	48. EINBAU	49. EINBAU	50. EINBAU
51. EINBAU	52. EINBAU	53. EINBAU	54. EINBAU	55. EINBAU
56. EINBAU	57. EINBAU	58. EINBAU	59. EINBAU	60. EINBAU
61. EINBAU	62. EINBAU	63. EINBAU	64. EINBAU	65. EINBAU
66. EINBAU	67. EINBAU	68. EINBAU	69. EINBAU	70. EINBAU
71. EINBAU	72. EINBAU	73. EINBAU	74. EINBAU	75. EINBAU
76. EINBAU	77. EINBAU	78. EINBAU	79. EINBAU	80. EINBAU
81. EINBAU	82. EINBAU	83. EINBAU	84. EINBAU	85. EINBAU
86. EINBAU	87. EINBAU	88. EINBAU	89. EINBAU	90. EINBAU
91. EINBAU	92. EINBAU	93. EINBAU	94. EINBAU	95. EINBAU
96. EINBAU	97. EINBAU	98. EINBAU	99. EINBAU	100. EINBAU

; ***** UP RETREG *****

; RETTEN REGISTER

RETREG: EX (SP), HL
PUSH AF
PUSH BC
PUSH DE
PUSH IX
PUSH IY
JP (HL)

; ***** UP HOLREG *****

; HOLEN REGISTER

HOLREG: POP HL ; ADRESSE
POP IY
POP IX
POP DE
POP BC
POP AF
EX (SP), HL
RET

OTOR

LOC	OBJ CODE	M	STMT	SOURCE	STATEMENT	PAGE 43
1000			1998	ORG	RAM	ASM 5.9
			1999			
			2000	;***** RAMDEFINITIONEN *****		
			2001			
1000			2002	DPUFF: DEFS 8	;DISPLAYPUFFER	
			2003			
1008			2004	TONTAB: DEFS 8		
			2005	; Wertebereich: Toncode		
			2006	; -Klingende Toene = Laufende T. + Sustain T.		
			2007			
1010			2008	NEWTAB: DEFS 8		
			2009	; Wertebereich: Toncode		
			2010	; -Laufende Toene im aktuellen Zyklus Z		
			2011			
1018			2012	OLDTAB: DEFS 8		
			2013	; Wertebereich: Toncode		
			2014	; -Alte laufende Toene des letzten Zyklus' Z-1		
			2015			
1020			2016	INDTAB: DEFS 8		
			2017	; Wertebereich: 00 (neu angeschlagen)		
			2018	; -OFFH (Maximales Alter oder leer)		
			2019			
1028			2020	AMPTAB: DEFS 8		
			2021	; Wertebereich: 01 (kleinste)		
			2022	; -FFH (größte Tonamplitude)		
			2023			
1030			2024	PHATAB: DEFS 8		
			2025	; BIT 0..2: 0 => leer		
			2026	; 1-4 => Phase 1-4		
			2027	; der Amplitudenhüllkurve		
			2028	; BIT 3 : Merker 1. Anschlag Double Attac		
			2029	; BIT 4 : Merker Repeat Attac		
			2030			
1038			2031	DECTAB: DEFS 8		
			2032	; Tondekodierport-Tabelle (Bei Initialisierung		
			2033	; erstellt)		
			2034			
1040			2035	CTCTAB: DEFS 8		
			2036	; Octavdekodierport-Tabelle (---)		
			2037			
1048			2038	ANATAB: DEFS 8		
			2039	; Amplitudenport-Tabelle (---)		
			2040			
1050			2041	MODTAB: DEFS 8		
			2042	; Modulationsdekodierport-Tabelle (---)		
			2043			
1058			2044	AFIM1: DEFS 1	;AMP FILTER MAN1	
1059			2045	AFIM2: DEFS 1	;AMP FILTER MAN2	
105A			2046	ATRM1: DEFS 1	;AMP TREMOLO MAN1	
105B			2047	ATRM2: DEFS 1	;AMP TREMOLO MAN2	
105C			2048	AGEN: DEFS 1	;AMP GENERATOREN	

LOC OBJ CODE M STMT SOURCE STATEMENT TATE SOURCE TIME M 3000 L ASM 5.91

1050 2050 STFIM1: DEFS B1 ;STAT FILTER MAN1 0001
 2051 ; BIT 0..1: 0 => leer 0001
 2052 ; 1-3 => Phase 1-3 0002
 2053 ; der Filterhuelikurve 0002
 2054 ; BIT 2 B: Neuanschlag 0002
 2055 ; BIT 4 : Phase 1 Up 0002
 2056 ; BIT 5 B: Phase 3 Up 0002
 105E 2057 STFIM2: DEFS B1 ;STAT FILTER MAN2 0001
 105F 2058 STTRM1: DEFS B1 ;STAT TREMOLO MAN1 0001
 1060 2059 STTRM2: DEFS B1 ;STAT TREMOLO MAN2 0001
 1061 2060 STGEN: DEFS B1 ;STAT GENERATOREN 0101
 2061 ;
 1062 2062 MANSTA: DEFS B1 ;MANUALSTATUS 0101
 2063 ; BIT 0: Tastendruck oder Sustain Man1 0101
 2064 ; BIT 1: B --> B --> B --> B Man2 0101
 2065 ; BIT 2: Sustain aded Man1 0101
 2066 ; BIT 3: B --> B --> B Man2 0101
 2067 ; BIT 4: Neuanschlag Man1 0101
 2068 ; BIT 5: B --> B --> B Man2 0101
 2069 ; BIT 6: Tastendruck Man1 0101
 2070 ; BIT 7: B --> B Man2 0101
 2071 ;
 2072 ;
 1063 2073 TON: DEFS B1 ; 0001
 2074 ; Toncode:
 2075 ;BIT: 1 7 1 6 1 5 1 4 1 3 1 2 1 1 0 1 0001
 2076 ;
 2077 ; 1 0 1 1 0 1 0 1 0 0 0 1 1 1 1 c 0001
 2078 ; 1 0 1 1 1 0 1 0 0 0 1 0 1 1 1 cis 0001
 2079 ; 1 0 1 1 1 1 0 1 0 0 0 1 1 1 d 0001
 2080 ; 1 0 1 1 1 1 1 0 1 0 0 0 0 1 dis 0001
 2081 ; 1 0 1 1 1 1 1 1 0 1 0 0 1 e 0001
 2082 ; 1 0 1 1 1 1 1 1 1 0 0 1 0 f 0001
 2083 ; 1 0 1 1 1 1 1 1 1 0 0 1 1 1 fis 0001
 2084 ; 1 0 1 1 1 1 1 1 1 0 0 0 0 g 0001
 2085 ; 1 0 1 1 1 1 1 1 1 0 0 0 1 gis 0001
 2086 ; 1 0 1 1 1 1 1 1 1 0 0 1 0 a 0001
 2087 ; 1 0 1 1 1 1 1 1 1 0 0 1 1 1 b 0001
 2088 ; 1 0 1 1 1 1 1 1 1 0 0 1 1 0 0 h 0001
 2089 ;
 2090 ; 1 0 1 1 1 0 1 0 1 0 1 Oktave 0 von oben 0001
 2091 ; 1 0 1 1 1 1 0 1 1 1 1 1 1 1 1 1 0001
 2092 ; 1 0 1 1 1 1 1 0 1 1 1 1 2 2 0001
 2093 ; 1 0 1 1 1 1 1 1 0 1 1 1 1 3 3 0001
 2094 ;
 2095 ; 1 0 1 1 1 Manual 1 0002
 2096 ; 1 1 1 0 1 1 1 1 1 1 1 2 0002
 2097 ; 1 1 1 1 1 1 Pedal 0002
 2098 ;
 2099 ;
 1064 2100 MADRUM: DEFS B1 ;MANUAL DRUM 0001
 2101
 2102 LOELEN: DEFS 1 0001
 2103 LOETAB: DEFS 50 0001

LOC OBJ CODE N STMT SOURCE STATEMENT

1098	2105	INASTA:	DEFS	1	; INA STATUS
	2106				; BIT0-ENTPRELLUNG
	2107				; BIT1-SHIFT
	2108				; BIT2-SHIFTE
	2109				
1099	2110	INAZ:	DEFS	1	; AKT. TASTER
109A	2111	MADR1:	DEFS	2	; MON. ADRESSE
109C	2112	MADR2:	DEFS	2	
109E	2113	MADR3:	DEFS	2	
10A0	2114	MDAT:	DEFS	1	; MON. DATEN
	2115				
10A1	2116	TASTGR:	DEFS	1	; TASTERGRUPPE
	2117				
10A2	2118	PAREAD:	DEFS	2	; PARAMETEREINGABEADRESSE
10A4	2119	PARECO:	DEFS	1	; PARAMETEREINGABECODE
	2120				
10A5	2121	FKOMB:	DEFS	1	; FREIE KOMB.
	2122				
	2123	; AKTUELLE FREIE KOMBINATION			
	2124				
10A6	2125	REGSP:	DEFS	16	; REGISTERSPEICHER
10B6	2126	DRUMS:	DEFS	1	; RHYTMUS
10B7	2127	HP11:	DEFS	NHP	; HUELLKURVENPARAMETER
10BF	2128	FP11:	DEFS	NFP	; FILTERPARAMETER
10C7	2129	TP11:	DEFS	NTP	; TREMOLOPARAMETER
10CF	2130	GP1:	DEFS	NGP	; GENERATORPARAMETER
	2131				
	2132	; FREIE KOMBINATIONEN			
	2133				
10D3	2134	FK0:	DEFS	FKLEN*16	
	2135				
13A3	2136	ENDE:	DEFS	1	

EXTRACT OTOR

RECORD COUNT=001B RECORD LENGTH=0080 BYTES IN LAST RECORD=0080

ENTRY=0000 LOW ADDRESS=0000 HIGH ADDRESS=13A3 STACK SIZE=0080

SEGMENTS:

0000 0D18

%

LOC OBJ CODE M STMT SOURCE STATEMENT

OTOR

PAGE 15
ASM 5.9

597
598 ; *****
599 ;
600 ; DIAGNOSEPROGRAMM FUER OTOR
601 ; ZYKLUS 01
602 ;
603 ; *****
604 ; AENDERUNGEN IN OTOR.S
605 ;-----
606 ;
607 ; TONDEC: EQU 40H
608 ; AMPOUT: EQU 40H
609 ; RAM: EQU 9000H
610 ; WARTE: RET
611 ; MP01: CALL DIAG1
612 ; DMA01: NOP
613 ; DMA02: LD (DBYT01),A
614 ; DMA03: LD (DTAB01),A
615 ; DMA04: CALL DIAG2
616 ;-----
617
8372 E5 618 DIAG1: PUSH HL
8373 2100A0 619 LD HL, DTAB01
8376 70 620 LD (HL), B
8377 78 621 LD A, B
8378 E60F 622 DIA11: AND 0FH
837A 85 623 ADD A, L
837B 6F 624 LD L, A
837C 3001 625 JR NC, DIA12
837E 24 626 INC H
837F 7E 627 DIA12: LD A, (HL)
8380 E1 628 POP HL
8381 C9 629 RET
8382 E5 630 DIAG2: PUSH HL
8383 2100A0 631 LD HL, DTAB01
8386 7E 632 LD A, (HL)
8387 18EF 633 JR DIA11
634
A000 635 ORG RAM+1000H
A000 636 DTAB01: DEFS 13
A00D 637 DBYT01: DEFS 1

%

```
===== 8160H ===== ASSEMBLERTESTSYSTEM VERSION 3.2 ===== 90H ===== ;5 =====
+-----+
| 01H | MANMAT | TONTAB 59 66 57 48 00 00 00 00 00 | PRUEB 1 1 0 0 |* * * * * * * * *
+-----+ NEWTAB 59 66 57 48 00 00 00 00 00 |* * * * * * * * *
| OUT | IN | OLDTAB 59 66 57 48 00 00 00 00 00 | TON 59H |* * * * * * * * *
+-----+ INDTAB 01 04 03 02 FF FF FF FF |* * * * * * * * *
| 1 | 01111111 | AMPTAB 3D 54 4D 44 00 00 00 00 00 | MANSTA 0FH |* * * * * * * * *
| 2 | 10111111 | PHATAB 01 01 01 01 00 00 00 00 00 |* * * * * * * * *
| 3 | 11011111 | DECTAB 40 41 42 43 00 00 00 00 00 |* * * * * * * * *
| 4 | 11101111 | CTCTAB 40 44 48 4C 00 00 00 00 00 |* * * * * * * * *
| 5 | 11110111 |* * * * * * * * *
| 6 | 11111011 | LOELEN 06 |* * * * * * * * *
| 7 | 11111101 | LOETAB 00 B1 A2 93 84 75 00 00 |* * * * * * * * *
| 8 | 11111110 |* * * * * * * * *
| 9 | 11111101 |* * * * * * * * *
| 10 | 11111111 |* * * * * * * * *
| 11 | 11111111 |* * * * * * * * *
| 12 | 11111111 |* * * * * * * * *
```

START (Y/N/Q/P): P

```
===== 8160H ===== ASSEMBLERTESTSYSTEM VERSION 3.2 ===== 90H ===== ;7 =====
+-----+
| 01H | MANMAT | TONTAB 59 6A 57 48 00 00 00 00 00 | PRUEB 1 1 0 1 |* * * * * * * * *
+-----+ NEWTAB 59 6A 57 48 00 00 00 00 00 |* * * * * * * * *
| OUT | IN | OLDTAB 59 6A 57 48 00 00 00 00 00 | TON 6AH |* * * * * * * * *
+-----+ INDTAB 02 01 04 03 FF FF FF FF |* * * * * * * * *
| 1 | 01111111 | AMPTAB 3F 01 4F 46 00 00 00 00 00 | MANSTA 0FH |* * * * * * * * *
| 2 | 10111111 | PHATAB 01 01 01 01 00 00 00 00 00 |* * * * * * * * *
| 3 | 11011111 | DECTAB 40 41 42 43 00 00 00 00 00 |* * * * * * * * *
| 4 | 11101111 | CTCTAB 40 44 48 4C 00 00 00 00 00 |* * * * * * * * *
| 5 | 11110111 |* * * * * * * * *
| 6 | 11111011 | LOELEN 07 |* * * * * * * * *
| 7 | 11111101 | LOETAB 00 B1 A2 93 84 75 66 00 |* * * * * * * * *
| 8 | 11111110 |* * * * * * * * *
| 9 | 11111101 |* * * * * * * * *
| 10 | 11111011 |* * * * * * * * *
| 11 | 11111111 |* * * * * * * * *
| 12 | 11111111 |* * * * * * * * *
```

START (Y/N/Q/P): P